



PATENT
Docket No. H 3799 PCT/US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Mueller et al.	Grp./A.U.:	1751
Appl. No.:	10/030,038	Examiner:	Eisa B. Elhilo
Filed:	May 20, 2002	Customer No.:	00423
Confirm. No.:	8946		
Title:	METHOD FOR PERMANENTLY SHAPING KERATIN FIBERS AND AGENTS		

DECLARATION UNDER 37 CFR 1.132

Sir,

I, Burkhard Mueller, Ph.D., declare that:

- 1) I am a co-inventor of the subject matter claimed in the above-identified patent application.
- 2) I received the degree of Diplom Chemist in 1985 from the University of Cologne (Universitaet zu Koeln), Germany. I received my Ph.D. in Chemistry from the same university in 1989.
- 3) I have been employed by Henkel KGaA, Duesseldorf, Germany, since 1989. My current position is as Director of the Permanent Waving and Hair Straightening Department at Schwarzkopf & Henkel, GmbH & Co., KG. I was appointed to this position in 1997.
- 4) I have read and am familiar with the latest Office Action issued by the United States Patent and Trademark Office on February 24, 2004. I have read and am familiar with both references cited therein, US 4,859,459 and US 5,681,554.
- 5) Under my direction and control the following comparative tests were performed:

Preparation of the waving composition

The waving compositions that are shown in Table 1 were prepared using a standard procedure. The abbreviation E1 correspond to the inventive waving composition of Example 5 of the subject patent application. The waving compositions corresponding to E2 and E3 are also waving compositions according to the present invention. The compositions corresponding to the abbreviations V1 to V5 are non-inventive comparative compositions.

- E1: multi-phase, does not contain an oil-component, contains an inventive C₄ – C₁₀-alcohol (2-ethylhexane-1,3-diol).
- E2: multi-phase, contains an oil-component (paraffin) and an inventive C₄ – C₁₀-alcohol (2-ethylhexane-1,3-diol).
- E3: Multi-phase, contains an oil-component (avocadin) and an inventive C₄ – C₁₀-alcohol (2-ethylhexane-1,3-diol).
- V1: multi-phase, contains an oil-component (paraffin) and a C₃-alcohol (propane-1,2-diol), as disclosed by Greiche et al.
- V2: Multi-phase, contains an oil-component (paraffin) and a C₁₂-alcohol (2-octyldodecanol).
- V3: multi-phase, contains an oil-component (paraffin) and no alcohol-component.
- V4: multi-phase, does not contain an oil-component, contains a C₁₂-alcohol (2-Octyldodecanol).
- V5: single-phase, contains an oil-component (avocadin) and an inventive C₄ – C₁₀-alcohol (2-ethylhexane-1,3-diol) and is an emulsion.

Table 1

All values given in table 1 are weight-% referred to the weight of the waving composition as a whole.

	E1	E2	V1	V2	V3	V4	E3	V5
ammonium thioglycolate 71% solution in water	16.0 %	16.0 %	16.0 %	16.0 %	16.0 %	16.0 %	16.0 %	16.0 %
ammonium bicarbonate	9.0 %	9.0 %	9.0 %	9.0 %	9.0 %	9.0 %	9.0 %	9.0 %
Lamepon [®] S ¹	1.0 %	1.0 %	1.0 %	1.0 %	1.0 %	1.0 %	1.0 %	1.0 %
Merquat [®] 100 ²	0.5 %	0.5 %	0.5 %	0.5 %	0.5 %	0.5 %	0.5 %	0.5 %
Gluadin [®] WQ ³	0.5 %	0.5 %	0.5 %	0.5 %	0.5 %	0.5 %	0.5 %	0.5 %
2-ethylhexane-1,3-diol	5.0 %	5.0 %	--	--	--	--	5.0 %	5.0 %
Coloring	0.0002%	0.0002%	0.0002%	0.0002%	0.0002%	0.0002%	0.0002%	0.0002%
Pefume oil	1.0 %	1.0 %	1.0 %	1.0 %	1.0 %	1.0 %	1.0 %	1.0 %
Ammonia (25% solution in water)	to pH 8.4	to pH 8.4	to pH 8.4	to pH 8.4	to pH 8.4	to pH 8.4	to pH 8.4	to pH 8.4
propane-1,2-diol	--	--	5.0 %	--	--	--	--	--
Eutanol [®] G ⁴ (2-Octyldodecanol)	--	--	--	5.0 %	--	--	--	--
Paraffin	--	5.0 %	5.0 %	5.0 %	5.0 %	--	--	--
avocadin [®] 5	--	--	--	--	--	--	2.4 %	2.4 %
Cremophor [®] RH 40 ⁶	--	--	--	--	--	--	--	12 %
Water	to 100 %	to 100 %	to 100 %	to 100 %	to 100 %	to 100 %	to 100 %	to 100 %

- 1 Potassium Cocoyl Hydrolysed Collagen (Cognis)
- 2 Poly(dimethylallylammoniumchlorid) (INCI: Polyquaternium-6) (Ondeo-Nalco)
- 3 Laurdimonium Hydroxypropyl Hydrolyzed Wheat Protein, Ethylparaben,
Methylparaben) (INCI: Aqua (Water) (Cognis)
- 4 2-Octyldodecanol (INCI: Octyldodecanol) (Cognis)
- 5 unsaponifiable fraction of avocado oil (INCI: Persea Gratissima (Avocado) Oil
Unsaponifiables) (Croda)
- 6 mixture of fatty acid polyethylene glycol ester and polyethylene glycol (INCI: PEG-40
Hydrogenated Castor Oil) (BASF)

Test Protocol

A strand of hair (100 virgin hairs with a length of 300 mm each) was wetted. The wet strand was coiled up on a curler and was treated with one of the waving compositions of table 1. The waving composition was shaken well before use, until a homogenous mixture was obtained. Then 0.5 mL of the waving composition was applied on the strand. It was not necessary to shake the waving composition V5 before use, because composition V5 is already a homogenous single-phase-emulsion.

The applied waving composition resided on the hair for a residence time of 20 minutes whilst the strand was exposed to a humidity of the air of 60 %. After that, the strand was rinsed with water. Then 1.0 mL of a commercially available neutralizing composition (Natural Styling Fixierung, producer: Schwarzkopf-Henkel) was applied. After a residence time of 10 minutes the strand was rinsed with water and was removed from the curler.

The waving efficiencies were measured. Therefore the length of a curl corresponding to 150 mm of straight hair was determined.

Evaluation

The waving efficiencies of table 2 are given in length of curled hair in mm. A smaller value corresponds to a higher degree of waving efficiency.

Table 2


waving composition (according to table 1)	E1	E2	V1	V2	V3	V4	E3	V5
length in mm	81	86	91	91	91	94	81	92

The inventive waving compositions E1 (multi-phase, inventive alcohol component, without oil component) and E2 (multi-phase, inventive alcohol component, with oil component) exhibit better waving efficiency than the comparative waving compositions V1, V2 and V3 (all multi-phase). Compositions V1 and V2 both contain a non-inventive alcohol component (C₃-alcohol and C₁₂-alcohol, respectively) whereas V5 contains no alcohol component. The observed improved waving efficiency results from the presence of the alcohol component in E1 and E2 in accordance with the invention.

Composition E3 (multi-phase, with alcohol component according to the invention, without oil component) exhibits superior waving efficiency over composition V5 (single-phase, including the alcohol component, without oil component). The two- or multi-phase compositions, which contain an alcohol component in accordance with the invention and are homogenized right before use, have a higher waving efficiency than do single-phase waving compositions.

6) I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such false statements may jeopardize the validity of the above-referenced application or any patent issuing therefrom.


Dr. Burkhard Müller


Date